

RICE PRODUCTION SITUATIONS IN DIFFERENT AGRICULTURAL REGIONS OF BANGLADESH

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Abstract

The study was undertaken to determine total supply/production of demand for and supply-demand balance of rice in different production environments of Bangladesh; and determine the present storing capacity, quantity of paddy stored, storage time and benefits derived for storing paddy at farm level for providing policy options to the concerned agencies. A nation-wide survey of farm and non-farm households of different production environments was conducted in 15 villages under 15 randomly selected sample upazilas. From the analysis it was found that, the consumption of clean rice ranged from 481-584 gm/capita/day among the seven rice production environments while farmers of saline area consumed less rice (481 gm/capita/day). All production environments were estimated to be more or less surplus in rice production. Some farmers sold paddy to meet-up their farm and household expenses even though they were deficit and/or marginally self-sufficient. The farmers who sold their excess production as deferred sale earned an additional benefit of Tk 34.00 to Tk 56.00 per 40 kg of paddy. Majority of sample farmers used to sell their paddy in the month Baisak (15 April-14 May), Poush (15 December-14 January) and Jaista (15 May-14 June) for Aus, Aman and Boro seasons, respectively. With this small amount of surplus production, the government still needs to think for increasing its buffer stock of at least 12.50 MMTs either through import or domestic procurement, so that the country's food security is ensured, if in case a crop season is affected due to the occurrence of any disaster. The total paddy storage capacity of sample farms was much less than their total production, which enabled them to sell their excess production immediately after harvest.

Introduction

Rice is the principal staple food of the people of Bangladesh. More than 90 percent of its population consumes rice and derives 68 percent of the calories and 52 percent of the daily protein requirement (IHES, 2007). Rice provides more than 50 percent of the agricultural value added, covers 76 percent of the total cropped land, and accounts for 92 percent of total food grain production in the country. More than 55 percent of the rural labor force is employed by the rice sector (BBS, 2008). The most remarkable aspect of the agricultural performance in Bangladesh since its independence in 1971 is the accelerated rice production enabled the country achieving rice self-sufficiency in 1991 (World Bank, 1995). Available statistics reveals that rice production was 10.97 MMTs in 1970-71, which increased to 28.05 MMTs in 2006-07. The total share of rice to total food grain production is about 95 percent, and the share of MV rice constitutes 87 percent (IHES, 2007 and DAE, 2006). However, the country is still importing rice to the tune of 10-15 percent of her total food grain requirement every year. Natural calamities like floods, droughts and storms are common occurrences in the country, which cause to sudden damage to crop. To overcome such an unforeseen consequences, the

government has to think for importing certain quantity of food grain every year. The landless and poor people, who always depend on market, are in a vulnerable situation. So, the government has to maintain some stocks either by importing or by internal procurement to meet up emergency need every year, which in turn sell in the open market particularly for the distress and/or vulnerable people. On the other hand, 5-10 percent of the agricultural households are surplus producers, who are again stored a certain percent of their production for deferred sale for want of higher price. There is little information on distress sale at the farm level. Moreover, the estimation of demand for rice is calculated on the basis of 454 grams per capita per day, which needs to verify the changing income-consumption situation. The study highlighted the rice economy and generated a database on the rice scenario of different regions of Bangladesh, which would help planners, policy makers and importers to make proper planning on food grain import for meeting the speculated demand for food of the people of Bangladesh.

Materials and Methods

A nation-wide survey of different production environments of Bangladesh (i.e., 1 = Non-flood/Non-drought (Dinajpur), 2 = Flood prone (Gaibandha), 3 = drought prone (Rajshahi), 4 = Saline (Satkira), 5 = Tidal-submergence (Pirojpur), 6 = Hilly area (Bandarban) and 7 = Flash flood (Sunamgonj)) was conducted during April, 2008 – May, 2008. The report is based on primary level data collected from 240 sample farms of eight villages under eight upazilas. Thirty farmers from each of the sample villages were selected at random on the basis of availability at home during the survey. The selected farmers were then interviewed using a set of structured questionnaire prepared and pre-tested in advance. The collected data were then coded, entered into the computer using Micro Soft Excel Program and validated using the computer program. The data were then analyzed using SPSS and presented in tabular form.

Results and Discussion

Production and requirement of paddy/clean rice

The sample farmers, on an average, consumed 537 gm/capita/day of clean rice, which is higher than that of average rice consumption i.e., 529 gm/capita/day as clean rice (FPMU, 2009). Total production/supply, requirement/demand and the estimate of supply-demand balance (i.e., surplus/deficit) of sample farms are also shown in Table 1. Seven production environments were surplus in paddy production (i.e., 307.02, 152.61, 236.11, 116.92, 116.59, 102.85 and 145.58 tons for non-flood/non-drought, flood-prone, drought-prone, saline, tidal-submergence, hilly and flash-flood production environments, respectively). On an average, the overall paddy production situation of the sample farmers in the seven production environments was surplus (1177.65 tons). This does not mean that these areas and/or all farms of the study areas were surplus in paddy production. However, the final conclusion will be made after completion of production and consumption survey of both farm and non-farm households in the year 2008-09.

Table 1. Production and requirement of paddy/clean rice by the sample farms, 2007-2008

Production Environments	Total paddy production by sample farms (tons)	Total paddy requirement by sample farms (tons)	Total paddy surplus/deficit at sample farm levels (tons)	Consumption of clean rice (gm/capita/ day)
1 = Non-flood/non-drought	361.08	54.06	+ 307.02	554
2 = Flood-prone	212.88	60.27	+ 152.61	564
3 = Drought-prone	276.76	40.65	+ 236.11	502
4 = Saline	154.92	38.00	+ 116.92	470
5 = Tidal submergence	156.95	40.36	+ 116.59	480
6 = Hilly area	160.36	57.52	+ 102.85	556
7=Flash flood	300.27	154.71	+ 145.58	586
All environments	1623.23	445.58	+ 1177.65	537

Source: Field Survey. NB: (+) indicates surplus

Paddy storage capacity at farm level

Table 2 showed the storage capacity of paddy at the sample farm level. All the sample farms were not able to store paddy at the similar rate. Some did not store, some stored less and some stored much depending upon their storage capacity. The average storage capacity of paddy of sample farms in the seven production environments was 1.99 t/hh. The farmers of flash-flood areas had less storage capacity (0.73 t/hh), while the farmers of drought-prone areas had highest storage capacity (3.75 t/hh) followed by flood-prone farmers (2.97 t/hh), non-flood and non-drought farmers (2.80 t/hh), tidal-submergence farmers (2.27 t/hh), hilly area farmers (1.40 t/hh) and saline area farmers (1.25 t/hh). The total storage capacity in the study areas was 477.76 tons, while their total production was 1623.23 tons resulted to a total of 1145.47 tons for marketing immediate after harvest. Thus, the farmers bound to sell the produces even though they wanted to store for sometimes for earning some benefits.

Table 2. Paddy storage capacity at sample farm household levels, 2007-2008

Production Environments	Total paddy Production (paddy) of sample farmers (tons)	Total storage capacity (paddy) of sample farmers (tons)	Average storage capacity (paddy) of sample farmers (tons)	Total paddy sold by sample farms immediate after harvest (tons)
1 = Non-flood/non-drought	361.08	81.28	2.80	279.80
2 = Flood-prone	212.88	89.20	2.97	123.68
3 = Drought-prone	276.75	116.20	3.75	160.55
4 = Saline	154.92	37.40	1.25	117.52
5 = Tidal submergence	156.96	68.00	2.27	88.96
6 = Hilly area	160.36	42.00	1.40	118.36
7 = Flash flood	300.28	43.68	0.73	256.60
All environments	1623.23	477.76	1.99	1145.47

Source: Field survey

Benefits derived from storing paddy

Farmers store paddy either for home consumption around the year or for deferred sale for want of higher price. Table 3 showed the benefit derived at the farm level for storing paddy in different seasons. Farmers earned, on an average, Tk 34.19 per md due to storing paddy sometimes in Aus season. The highest earning was Tk 60.10 per md in tidal-submergence environment followed by hilly area Tk 36.25 per md (1md = 40 kg as reported by farmers). The farmers of non-flood/non-drought, flood-prone and saline areas either did not store paddy or earn benefit from storing paddy in Aus season.

Table 3. Percent distribution of sample farms derived benefit from storing paddy, 2007-08

Production Environments	Benefit derived from storing Aus paddy (Tk/md)	Benefit Derived from storing Aman paddy (Tk/md)	Benefit Derived from storing Boro paddy (Tk/md)
1 = Non-flood/non-drought	-	75.42	68.50
2 = Flood-prone	-	41.58	33.68
3 = Drought-prone	21.58	29.37	30.42
4 = Saline	-	100.00	42.75
5 =Tidal submergence	60.10	81.79	-
6 =Hilly area	36.25	55.42	36.67
7 =Flash flood	22.00	53.33	49.00
All environments	34.19	55.57	40.54

Source: Field survey

Farmers' paddy selling behavior

Table 4 showed percent distribution of farms with their selling behavior of paddy in different seasons. Majority of sample farms (66.25%) did not sell Aus paddy. However, 22.50% farms sold Aus paddy after storing few months, while 11.25% sold just after harvest. In the case of Aman paddy, majority of sample farms (43.75%) sold paddy sometimes later than the harvesting time. Majority of the farmers (73.33%) in saline areas did not sell Aman paddy. Nearly 93 percent of Boro farmers never sold their paddy in Tidal-submergence whereas fifty and sixty percent never sold their paddy in Hilly and Flash flood. It was further observed that almost similar selling behavior reported by the Boro farmers in all other cases (Table 4).

Table 4. Percent distribution of sample farms with their selling behavior of paddy, 2007-08

Production environments	Aus			Aman			Boro		
	% farms harvest sale	% farms differed sale	% farms never sale	% farms harvest sale	% farms differed sale	% farms never sale	% farms harvest sale	% farms differed sale	% farms never sale
1	-	-	100.00	24.14	62.07	13.79	34.48	58.62	6.90
2	-	-	100.00	36.67	63.33	-	30.00	63.33	6.67
3	25.81	61.29	12.90	16.13	77.42	6.45	16.13	77.42	6.45
4	-	-	100.00	-	26.67	73.33	-	76.67	23.33
5	6.67	33.33	60.00	30.00	50.00	20.00	6.67	-	93.33
6	23.33	66.67	10.00	26.67	40.00	33.33	20.00	30.00	50.00
7	16.67	8.33	75.00	28.33	15.00	56.67	23.33	16.67	60.00
All	11.25	22.50	66.25	23.75	43.75	32.50	19.17	42.50	38.33

Source: Field survey

Paddy selling months

Majority of the sample farms (84.91%) sold Aus paddy in the month of Baisakh. Only 3.77% and 11.33% sold in the months of Ashin and Kartic, respectively. The sample farms sold Aman paddy during the months of Agrahayan through Chaitra (Table 5). However, majority of them (45.36%) sold in the month of Poush followed by Agrahayan (26.80%), Chaitra (14.44%), Magh (12.37%) and Falgun (1.03%). The selling of Boro paddy started in the month of Magh and ended in Arshin. However, majority farms (65.12%) sold their boro paddy in the month of Jaista (Table 6).

Table 5. Percent distribution of sample farms sold Aman and Aus paddy after storing sometime, 2007-08

Production environments	Aus paddy (selling month)				Aman paddy (selling months)					
	Baisakh	Arshin	Kartik	Total	Agrayhon	Poush	Magh	Falgun	Chaitra	Total
1	-	-	-	-	25.00	58.33	16.67	-	-	100
2	-	-	-	-	52.63	42.11	-	-	5.26	100
3	72.22	5.56	22.22	100	-	58.33	-	-	41.67	100
4	-	-	-	-	66.67	33.33	-	-	-	100
5	100.00	-	-	100	-	17.65	58.82	5.88	17.65	100
6	85.00	5.00	10.00	100	27.27	72.73	-	-	-	100
7	100.00	-	-	100	75.00	25.00	-	-	-	100
All	84.91	3.77	11.32	100	26.80	45.36	12.37	1.03	14.44	100

Source: Field survey

Table 6. Percent distribution of sample farms sold Boro paddy after storing sometime, 2007-08

Production environments	Boro paddy (selling month)								
	Magh	Chaitra	Baisakh	Jaista	Ashar	Sraban	Bhadra	Arshin	Total
1	10.00	-	-	50.00	10.00	10.00	20.00	-	100
2	-	-	5.26	94.74	-	-	-	-	100
3	-	4.35	-	56.52	-	39.13	-	-	100
4	-	-	28.57	50.00	-	7.14	7.14	7.15	100
5	-	-	-	-	-	-	-	-	-
6	18.18	9.09	-	72.73	-	-	-	-	100
7	11.11	0.00	33.33	55.56	-	-	-	-	100
All	4.65	2.33	9.30	65.12	1.16	12.79	3.49	1.16	100

Source: Field survey

Conclusion and Recommendations

Paddy production was estimated as surplus in all of the rice production environments. This does not mean that all sample farmers were surplus in rice production. Some were deficit, some marginally self-sufficient and some were surplus in rice production. The consumption of clean rice was estimated to 537 gm/capita/day. Its consumption ranges from 470 - 586 gm/capita/day among the seven rice production environments. The sample farmers in the saline areas consumed less rice (470 gm/capita/day) compared to other rice production environments. The total storage paddy capacity of sample farms was much less than their total production, which compelled them to sell the access production just after harvest. The total paddy storage capacity of sample farms was much less than their total production, which enabled them to sell their access production immediately after harvest. So, Government should take good initiative to strengthen the storage capacity at the farm household level by providing financial and technical support. So, that farmers will be more benefited form deferred sale of their produces.

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